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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Igor IVANISEVIC et al.

Application No.: 10/635,113

Filed: August 6, 2003

For: SYSTEM AND METHOD FOR
MATCHING DIFFRACTION
PATTERNS

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) Group Art Unit: 2882
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) Examiner: Allen C. Ho
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) Confirmation No.: 2064
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Response to election/restriction requirement

This communication responds to the non-Final Office Action dated March 1, 2006.

The Office Action at page 2 required election/restriction between the following two species argued by the Examiner as being directed to patentably distinct inventions:

Species 1: corresponding to "a method of analyzing diffraction patterns as shown in Fig. 2;" and

Species 2: corresponding to "a method of disorder simulation as shown in Fig. 29."

Applicants respectfully traverse the election/restriction requirement. In order to be fully responsive to the Office Action, however, applicants elect Species 1: "a method of analyzing diffraction patterns as shown in Fig. 2." At least claims 1-27, 31-74, 78-121, 125-147, and 151-154 read on the elected species.

Applicants traverse the election/restriction requirement because there would not be a serious burden on the Examiner to examine both "species" in this application. See MPEP § 803 ("There are two criteria for a proper requirement for restriction between

patentably distinct inventions: (A) The inventions must be independent . . . or distinct as claimed . . . and (B) There would be a serious burden on the examiner if restriction is not required . . .").

The Examiner states as a basis for the election/restriction that "a simulation begins with an initial assumption in order to calculate a diffraction pattern, whereas an analysis begins with a diffraction pattern without assumption." The Examiner relies on Figures 2 and 29 to illustrate the species. Both species 1 and species 2, however, embrace a method of analyzing diffraction patterns. Species 2 is further directed to a method of disorder simulation. The Examiner incorrectly states that species 2 must start with an initial assumption. Rather, the specification shows that species 2, like species 1, may start with measured data such as an X-ray powder diffraction pattern peak list. See ¶118.

Furthermore, the specification teaches that the use of disorder simulation may incorporate elements of the process of species 1. In Figure 2, species 1 begins with receiving an X-ray diffraction pattern (stage 210). Paragraph 65 teaches that the stage 210 input may be in the form of a data file. Likewise, Paragraph 118 teaches that such an input for species 2 may also be a data file. The pre-processing of Figure 2 at stage 220 is described in ¶ 66. Species 2 may also include such a pre-processing step in stage 2910 using a process described in Figure 3 at stage 320. The pre-processing step for both species can be the same and is described in ¶66, ¶78, ¶83, ¶85, ¶118, and Figures 3, 4, and 6.

Paragraph 66 teaches pre-processing used in species 1. Paragraph 78 further teaches pre-processing for species 1 as described in Figures 3 and 4. Paragraph 83 teaches that pre-processing can be used to determine the variance of a pattern (stage 440 in Figure 3) and can be used for peak detection, and paragraph 85 teaches that such peak detection is further described in Figures 5 and 6. Paragraph 118, which describes species 2, teaches that algorithms taught in Figure 6 (which include pre-processing) are used in conjunction with Figure 29 (species 2).

In both species, pre-processing and peak detection are performed to isolate the peaks that best describe the measured data. Furthermore, in both species, this information is used to make a comparison prior to performing pattern matching.

Species 2 has an extra step where a disordered pattern from the peak list is first simulated, prior to matching and clustering, whereas species 1 simply proceeds to matching and clustering.

In species 1, pattern matching appears in stage **230** of Figure 2 whereas in species 2, pattern matching occurs in stage **2930**. Hierarchical clustering in species 1 at stage **240** is also taught in ¶ 123 as a possible method for achieving pattern matching in Figure 29.


In view of at least the comments above, the election/restriction requirement should be withdrawn and all pending claims should be examined in this application.

If there is any fee due in connection with the filing of this Response, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: March 30, 2006

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